DOCUMENT RESUME

ED 301 741 CE 051 528

TITLE Auto Mechanics Series. Duty Task List.
INSTITUTION Oklahoma State Dept. of Vocational and Technical Education, Stillwater. Curriculum and Instructional Materials Center.
PUB DATE 88
NOTE 81p.; For other duty/task lists, see CE 051 510-538.
AVAILABLE FROM Curriculum and Instructional Materials Center, Oklahoma Department of Vocational and Technical Education, 1500 West Seventh Avenue, Stillwater, OK 74074.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Auto Mechanics; Behavioral Objectives; Employment Qualifications; Engines; Job Analysis; Job Skills; *Motor Vehicles; *Occupational Information; Postsecondary Education; Power Technology; *Repair; Small Engine Mechanics; Trade and Industrial Education

ABSTRACT

This document contains the occupational duty/task lists for eight occupations in the auto mechanics series. Each occupation is divided into a number of duties. A separate page for each duty in the occupation lists the tasks in that duty along with its code number and columns to indicate whether that particular duty has been taught and to provide space for comments. The occupations are engine repair specialist, automatic transmission/transaxle specialist, manual drivetrain and axles specialist, suspension and steering specialist, brake specialist, electrical systems specialist, heating and air conditioning specialist, and engine performance specialist. The occupational duty/task lists are the result of an extensive two-step development process in which information on current occupational requirements was gathered from such sources as consortia, trade associations, and current curriculum materials and was then synthesized by industry representatives, vocational instructors, and state-level representatives. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED301741

DUTY TASK LIST

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

R Maker

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ENGINE REPAIR SPECIALIST
AUTOMATIC TRANSMISSION / TRANSAXLE SPECIALIST
MANUAL DRIVETRAIN AND AXLES SPECIALIST
SUSPENSION AND STEERING SPECIALIST
BRAKE SPECIALIST
ELECTRICAL SYSTEMS SPECIALIST
HEATING AND AIR CONDITIONING SPECIALIST
ENGINE PERFORMANCE SPECIALIST

CE051528

NATEF

2

OKLAHOMA OCCUPATIONAL TESTING CENTER

OKLAHOMA OCCUPATIONAL TESTING CENTER

INTRODUCTION:

Today's vocational instructors and administrators are faced with a myriad of important questions. They are searching for methods of providing accountability for students' acquisition of knowledge and skills as related to a constantly changing job market.

The Oklahoma Occupational Testing Center is in the business of eliminating some of the guesswork in answering today's tough questions. The professional staff, using a thorough and valid methodology, has developed duty/task lists for over 150 occupations in vocational education. Additional occupational duty/task lists will be made available as development is completed. These duty/task lists will help answer the following questions:

- Are students being prepared for today's jobs?
- What should today's vocational instructors be teaching?
- Is the curriculum addressing industry needs and is it up-to-date?
- How can vocational programs be improved?
- What in-service programs are needed for instructors?

BACKGROUND:

The occupational duty/task lists are the result of an extensive development process. Information regarding the occupational skills needed for employment is gathered from a number of sources such as consortia, trade associations, and current curriculum materials. This information is then synthesized by: 1) industry representatives, 2) vocational instructors, and 3) state level vocational representatives. The end result is a listing of occupations and the specific duties and tasks within each occupation. After dissemination for field review a committee of industry and vocational representatives revise the duty/task list to its final form.

USES:

The Oklahoma Occupational Testing Center's Duty/Task Lists are designed to be of value to a vocational program in several ways:

- Improving program planning
- Documenting industrial standards
- Evaluating curriculum and instruction
- Tracking individualized instruction*
- Using as a discussion tool with advisory committees
- Developing up-to-date job descriptions
- Performing self-evaluations
- Performing administrative program evaluations

INFORMATION:

To find out more about the Oklahoma Occupational Testing Center, call toll free:
1-800-654-4502.
Ask for our free catalog, listing over 150 occupations for which duty/task lists are available. CIMC curriculum materials related to these lists may also be available.

*A Progress Chart is provided for tracking individualized instruction.

Reprinted with Permission from ASE/NATEF

Copyright 1988

Oklahoma State Department of Vocational and Technical Education
Oklahoma Occupational Testing Center

All rights reserved.

Printed in the United States of America by the
State Department of Vocational and Technical Education
Stillwater, Oklahoma 74074

The Oklahoma State Department of Vocational and
Technical Education does not discriminate on the
basis of race, creed, color, national origin, sex, age,
veteran status, or qualified handicap.

89-005993

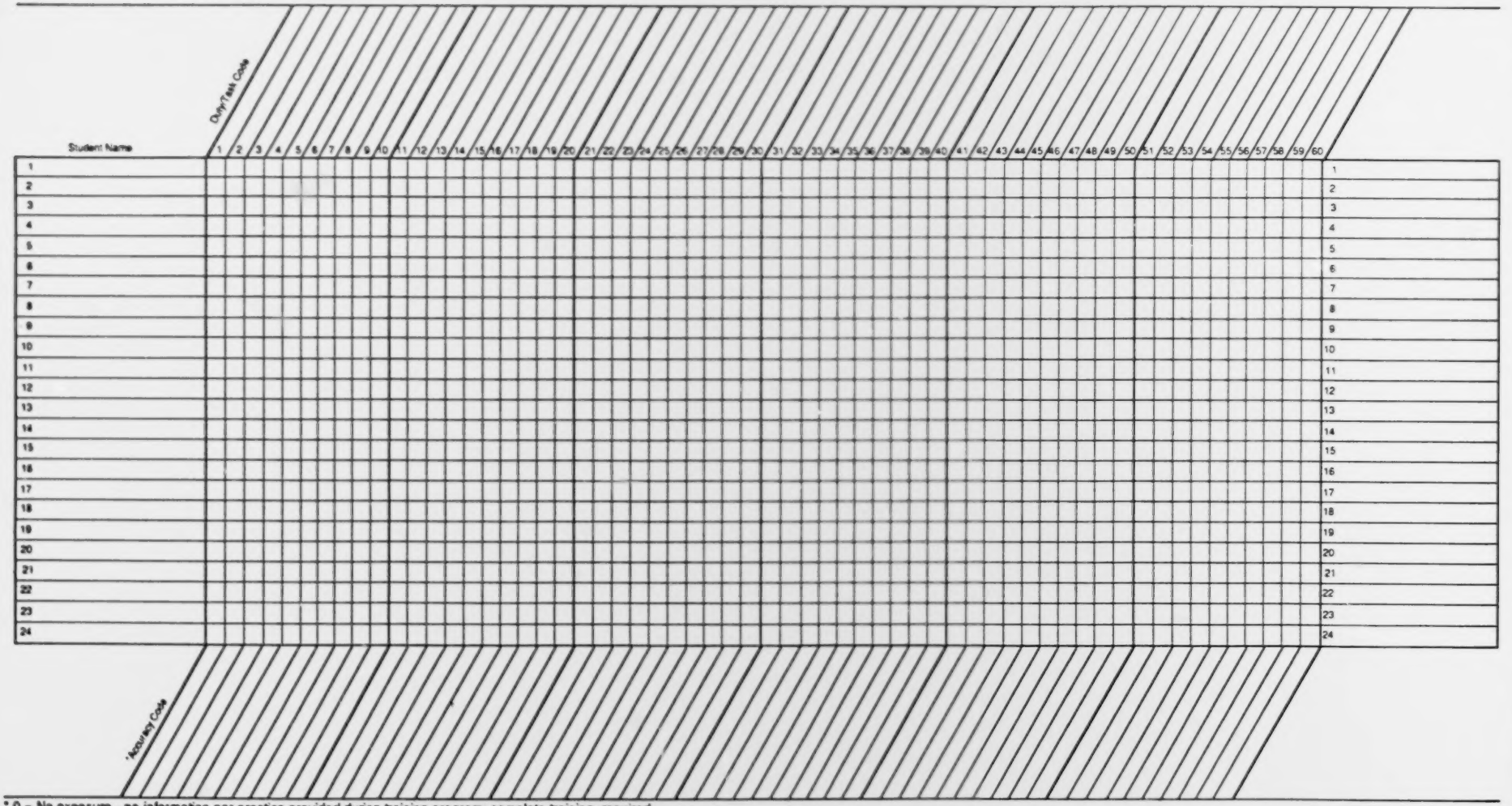
PROGRESS CHART

OKLAHOMA OCCUPATIONAL TESTING CENTER

Program

Oklahoma State Department of Vocational and Technical Education

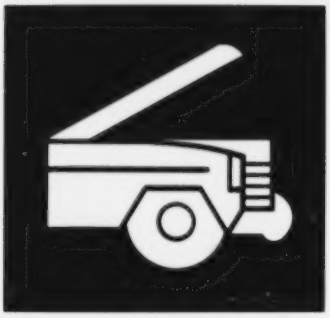
Date



* 0 = No exposure - no information nor practice provided during training program; complete training required.
1 = Exposure only - general information provided with no practice time; close supervision needed and additional training required.
2 = Limited practice - has practiced during training program; additional training is required to develop skill.
3 = Moderately skilled - has performed independently during training program; limited additional training may be required.
4 = Skilled - can perform independently with no supervision.

This chart may be duplicated as needed.

DUTY/TASK LISTS
AUTO MECHANICS SERIES



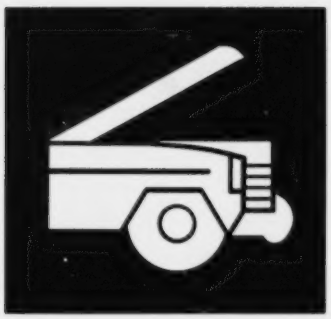
OCCUPATIONS:

1. Engine Repair Specialist
2. Automatic Transmission/Transaxle Specialist
3. Manual Drive Train and Axles Specialist
4. Suspension and Steering Specialist
5. Brake Specialist
6. Electrical Systems Specialist
7. Heating and Air Conditioning Specialist
8. Engine Performance Specialist

YOUR KEY TO THE FUTURE
NATEF
NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

OKLAHOMA OCCUPATIONAL TESTING CENTER

DUTY/TASK LIST
AUTO MECHANICS SERIES



OCCUPATION 1: ENGINE REPAIR SPECIALIST

DUTIES:
- A. Diagnose, Repair and Replace Engines, General
- B. Diagnose and Repair Cylinder Heads and Valve Trains
- C. Diagnose and Repair Engine Block
- D. Diagnose and Repair Lubrication and Cooling Systems
- E. Perform Miscellaneous Engine Diagnostics
- Z. Perform Shop Organization and Safety Functions

YOUR KEY TO THE FUTURE
NATEF
NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

OKLAHOMA OCCUPATIONAL TESTING CENTER

OCCUPATION: ENGINE REPAIR SPECIALIST

DUTY: Diagnose, Repair, and Replace Engines, General

CODE	TASK	TAUGHT	COMMENTS
A.00	Identify general engine diagnosis problems		
A.01	Verify complaint and/or road test vehicle; determine needed repairs		
A.02	Inspect engine assembly for fuel, oil, coolant, and other leaks; determine needed repairs		
A.03	Listen to engine noises; determine needed repairs		
A.04	Diagnose the cause of excessive oil consumption, unusual engine exhaust color, odor, and sound; determine needed repairs		
A.05	Perform engine vacuum tests; determine needed repairs		
A.06	Perform cylinder power balance tests; determine needed repairs		
A.07	Perform cylinder compression tests; determine needed repair		
A.08	Perform cylinder leakage tests; determine needed repairs		
A.09	R & R engine (front-wheel drive); prepare for tear down		
A.10	R & R engine (rear-wheel drive); prepare for tear down		
A.11	R & R engine mounts		

OCCUPATION: ENGINE REPAIR SPECIALIST

DUTY: Diagnose and Repair Cylinder Heads and Valve Trains

CODE	TASK	TAUGHT	COMMENTS
B.01	Remove cylinder heads; visually inspect cylinder heads for cracks; gasket surface areas for warpage and leakage; and check passage condition		
B.02	Install cylinder heads and gaskets; tighten in accordance with manufacturers' specifications and procedures		
B.03	Inspect and test valve springs for squareness, pressure, and free height comparison; replace as necessary		
B.04	Inspect valve spring retainers, locks, and valve lock grooves		
B.05	Replace valve stem seals		
B.06	Inspect valve guides for wear, check valve guide height and stem-to-guide clearance; recondition/replace as necessary		
B.07	Inspect valves; resurface or replace		
B.08	Inspect valve seats, resurface or replace		
B.09	Check valve face-to-seat contact and valve seat concentricity (runout); service seats and valves as necessary		
B.10	Check valve spring assembled height and valve stem height; service valve and spring assemblies as necessary		
B.11	Inspect pushrods, rocker arms, rocker arm pivots, and shafts for wear, bending, cracks, looseness, and blocked oil passages; repair or replace		
B.12	Inspect, test, and replace hydraulic or mechanical lifters		
B.13	Adjust valves on engines with mechanical and hydraulic lifters		
B.14	Inspect and replace camshaft drives. (Includes checking gear wear, backlash sprocket, and chain wear, overhead cam drive sprockets, drive belts, belt tension, and tensioners)		
B.15	Inspect and measure camshaft journals and lobes		
B.16	Inspect and measure camshaft bearing surfaces for damage, out-of-round, and alignment; determine needed repairs		

OCCUPATION: ENGINE REPAIR SPECIALIST

DUTY: Diagnose and Repair Cylinder Heads and Valve Trains

CODE	TASK	TAUGHT	COMMENTS
B.17	Measure camshaft timing		
B.18	Install camshaft and bearings		

OCCUPATION: ENGINE REPAIR SPECIALIST

DUTY: Diagnose and Repair Engine Block

CODE	TASK	TAUGHT	COMMENTS
C.01	Inspect and replace pans, covers, gaskets, and seals		
C.02	Visually inspect engine block for cracks, passage condition, core and gallery plug condition, and surface warpage; service block or determine needed repairs		
C.03	Inspect and repair damaged threads		
C.04	Remove cylinder wall ridges		
C.05	Inspect and measure cylinder walls for damage and wear; determine needed repairs		
C.06	Hone and clean cylinder walls		
C.07	Inspect and measure camshaft bearings for wear, damage, out-of-round, and alignment; determine needed repairs		
C.08	Inspect crankshaft for surface cracks and journal damage; check oil passage condition; measure journal wear and service crankshaft; determine needed repair		
C.09	Inspect and measure main and connecting rod bearings for damage, clearance, and end play; determine needed repairs including the proper selection of bearings		
C.10	Identify piston and bearing wear patterns that indicate connecting rod alignment and main bearing bore problems; inspect rod alignment and bearing bore condition		
C.11	Inspect, measure, service, or replace pistons		
C.12	Install new piston pins and bushings (if applicable)		
C.13	Inspect, measure, and install piston rings		
C.14	Inspect, repair, or replace crankshaft vibration damper (harmonic balancer)		
C.15	Inspect crankshaft flange and flywheel for burrs; repair as necessary		
C.16	Inspect flywheel for cracks, wear (includes flywheel ring gear), and measure flywheel runout; determine needed repairs		

OCCUPATION: ENGINE REPAIR SPECIALIST

DUTY: Diagnose and Repair Engine Block

CODE	TASK	TAUGHT	COMMENTS
C.17	Inspect, remove, and replace crankshaft pilot bearing/ bushing (if applicable)		
C.18	Reassemble engine parts using correct gaskets and sealers		
C.19	Remove auxiliary shaft(s) (also known as balance, intermediate, idler, counterbalance, or silencer shafts); inspect shafts and support bearings for damage and wear		
C.20	Prime engine lubrication system		

OCCUPATION: ENGINE REPAIR SPECIALIST

DUTY: Diagnose and Repair Lubrication and Cooling Systems

CODE	TASK	TAUGHT	COMMENTS
D.00	Identify lubrication and cooling system problems		
D.01	Perform oil pressure tests; determine needed repairs		
D.02	Inspect, measure, repair, or replace oil pumps (includes gears, rotors, and housing), pressure relief devices, and pump drives		
D.03	Perform cooling system tests; determine needed repairs		
D.04	Inspect, replace, and adjust drive belts and pulleys in accordance with manufacturers' specifications		
D.05	Inspect and replace engine cooling and heater system hoses		
D.06	Inspect, test, and replace thermostat, by-pass, and housing		
D.07	Inspect coolant; drain, flush, and refill cooling system with recommended coolant		
D.08	Inspect, test, and replace water pump		
D.09	Inspect, test, and replace radiator, pressure cap, and expansion tank		
D.10	Clean, inspect, test, and replace fan (both electrical and mechanical), fan clutch, fan shroud, and cooling system related temperature sensors		
D.11	Inspect, test, repair, or replace auxiliary oil coolers		
D.12	Inspect, test, and replace oil temperature/pressure switches and sensors		
D.13	Perform oil change on turbo charged engine (Note: Special procedures must be followed)		

OCCUPATION: ENGINE REPAIR SPECIALIST

DUTY: Perform Miscellaneous Engine Diagnostics

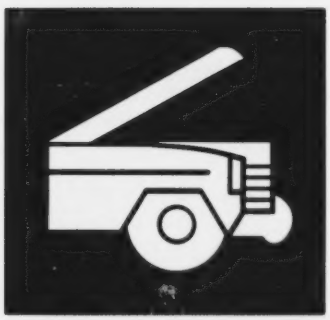
CODE	TASK	TAUGHT	COMMENTS
E.01	Install engine accessory components (electrical)		
E.02	Install engine accessory components (mechanical)		
E.03	Adjust and start newly installed engine		

OCCUPATION: ENGINE REPAIR SPECIALIST

DUTY: Perform Shop Organization and Safety Functions

CODE	TASK	TAUGHT	COMMENTS
Z.01	Maintain a clean, safe work environment		
Z.02	Maintain a positive work environment		
Z.03	Apply principles of basic measurement		
Z.04	Use hand tools		
Z.05	Use power tools		
Z.06	Use gas and electric welding equipment		
Z.07	Process work orders		
Z.08	Use shop reference manuals		
Z.09	Use shop lifts		
Z.10	Provide new car servicing; repair accessory or electronic options		

DUTY/TASK LIST
AUTO MECHANICS SERIES



OCCUPATION 2: AUTOMATIC TRANSMISSION/TRANSAXLE SPECIALIST

DUTIES:

A. Diagnose Transmission/Transaxle, General

B. Maintain and Adjust Transmission/Transaxle

C. Repair In-Car Transmission/Transaxle

D. Repair Off-Car Transmission/Transaxle

Z. Perform Shop Organization and Safety Functions

YOUR KEY TO THE FUTURE
NATEF
NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

OKLAHOMA OCCUPATIONAL TESTING CENTER

OCCUPATION: AUTOMATIC TRANSMISSION/TRANSAXLE SPECIALIST

DUTY: Diagnose Transmission/Transaxle, General

CODE	TASK	TAUGHT	COMMENTS
A.00	Identify problems of transmission/transaxle diagnosis		
A.01	Listen to driver's complaint and road test vehicle; determine needed repairs		
A.02	Diagnose noise and vibration problems; determine needed repairs		
A.03	Diagnose unusual fluid usage, level, and condition problems; determine needed repairs		
A.04	Perform pressure tests; determine needed repairs		
A.05	Perform stall tests; determine needed repairs		
A.06	Perform lock-up converter system tests; determine needed repairs		
A.07	Diagnose electronic, mechanical, and vacuum control systems; determine needed repairs		
A.08	Inspect and adjust transmission linkage		

OCCUPATION: AUTOMATIC TRANSMISSION/TRANSAXLE SPECIALIST

DUTY: Maintain and Adjust Transmission/Transaxle

CODE	TASK	TAUGHT	COMMENTS
B.01	Inspect, adjust, or replace manual shift valve and throttle (TV) linkages/cables (if applicable)		
B.02	Adjust bands		
B.03	Service transmission/perform visual inspection; replace fluids and/or filters		
B.04	Inspect, adjust, and replace electronic sensors, wires, and connectors; determine needed repairs		

OCCUPATION: AUTOMATIC TRANSMISSION/TRANSAXLE SPECIALIST

DUTY: Repair In-Car Transmission/Transaxle

CODE	TASK	TAUGHT	COMMENTS
C.01	Inspect, replace, and adjust (if necessary) vacuum modulator; inspect and/or replace lines and hoses		
C.02	Inspect, repair, and replace governor cover, seals, sleeve, valve, weights, springs, retainers, and gear		
C.03	Inspect and replace external seals and gaskets		
C.04	Inspect, repair, and replace extension housing; replace bushing and seal		
C.05	Inspect, test, flush, and replace cooler, lines, and fittings		
C.06	Inspect and replace speedometer drive gear, driven gear, and retainers		
C.07	Inspect, measure, repair, and replace valve body including surfaces and bores, springs, valves, sleeves, retainer, brackets, check balls, screens, spacers, and gaskets		
C.08	Inspect and replace servo including bore, piston, seals, pin, spring, and retainers		
C.09	Inspect and replace accumulator including bore, piston, seals, spring, and retainers		
C.10	Inspect, test, adjust, repair, and/or replace transmission-related electrical/electronic components including computers, solenoids, sensors, relays, and switches		
C.11	Inspect, replace, and align power train mounts		

OCCUPATION: AUTOMATIC TRANSMISSION/TRANSAXLE SPECIALIST

DUTY: Repair Off-Car Transmission/Transaxle

CODE	TASK	TAUGHT	COMMENTS
**	**Removal, Disassembly, and Assembly**		
D.01	Remove and replace transmission and torque converter (rear-wheel drive)		
D.02	Remove and replace transaxle and torque converter assembly		
D.03	Disassemble, clean, and inspect transmission (rear-wheel drive)		
D.04	Disassemble, clean, and inspect transaxle assembly		
D.05	Assemble transmission (rear-wheel drive)		
D.06	Assemble transaxle assembly		
**	**Oil Pump and Converter**		
D.07	Inspect converter flex plate, attaching parts, pilot and pump drive; seal areas		
D.08	Measure torque converter end play and check for interference; check stator clutch		
D.09	Inspect, measure, and replace oil pump housings, shafts, vanes, rotors, gears, valves, seals, and bushings		
D.10	Flush torque converter and transmission cooling system		
D.11	Perform lock-up converter and control system checks		
**	**Gear Train, Shafts, Bushings, and Case**		
D.12	Check end-play and/or preload; determine needed service		
D.13	Inspect, measure, and replace thrust washers and bearings		
D.14	Inspect and replace shafts		
D.15	Inspect oil delivery seal rings including ring, ring groove, and sealing surface area		
D.16	Inspect and replace bushings		

OCCUPATION: AUTOMATIC TRANSMISSION/TRANSAXLE SPECIALIST

DUTY: Repair Off-Car Transmission/Transaxle

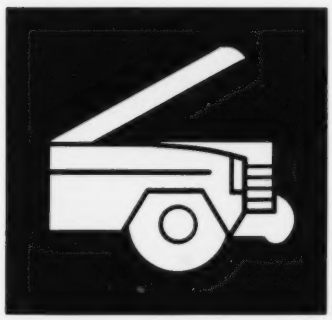
CODE	TASK	TAUGHT	COMMENTS
D.17	Inspect and measure planetary gear assembly including sun, ring gear, thrust washers, and carrier assembly; replace as necessary		
D.18	Inspect, repair, and replace cases including bores, passages, bushings, vents, and mating surfaces		
D.19	Inspect, repair, or replace transaxle drive link chains, sprockets, gears, bearings, and bushings		
D.20	Inspect, measure, repair, adjust, or replace transaxle final drive components		
D.21	Inspect and replace parking pawl, shaft, spring, and retainer		
**	**Friction and Reaction Units**		
D.22	Inspect and replace clutch assembly including drum, piston, check balls, springs, retainers, seals, and friction/pressure plates		
D.23	Measure and adjust clutch pack clearance		
D.24	Air test the operation of the clutch pack and servo assemblies		
D.25	Inspect and replace roller and sprag clutches including races, rollers, sprags, springs, cages, and retainers		
D.26	Inspect and replace bands and drums		

OCCUPATION: AUTOMATIC TRANSMISSION/TRANSAXLE SPECIALIST

DUTY: Perform Shop Organization and Safety Functions

CODE	TASK	TAUGHT	COMMENTS
Z.01	Maintain a clean, safe work environment		
Z.02	Maintain a positive work environment		
Z.03	Apply principles of basic measurement		
Z.04	Use hand tools		
Z.05	Use power tools		
Z.06	Use gas and electric welding equipment		
Z.07	Process work orders		
Z.08	Use shop reference manuals		
Z.09	Use shop lifts		
Z.10	Provide new car servicing; repair accessory or electronic options		

DUTY/TASK LIST
AUTO MECHANICS SERIES



OCCUPATION 3: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTIES:

A. Diagnose and Repair Clutch Components

B. Diagnose and Repair Transmission Components

C. Diagnose and Repair Transaxles

D. Diagnose and Repair Drive (HALF) Shafts and Universal Joints

E. Diagnose and Repair Rear Axles

F. Diagnose and Repair Four-Wheel Drive Components

Z. Perform Shop Organization and Safety Functions

YOUR KEY TO THE FUTURE
NATEF
NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

OKLAHOMA OCCUPATIONAL TESTING CENTER

OCCUPATION: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTY: Diagnose and Repair Clutch Components

CODE	TASK	TAUGHT	COMMENTS
A.00	Identify problems of clutch diagnosis and repair		
A.01	Diagnose clutch noise, binding, slippage, pulsation, and chatter problems; determine needed repairs		
A.02	Inspect, adjust, and replace clutch pedal linkage, cables, and automatic adjuster mechanisms, brackets, bushings, pivots, and springs		
A.03	Inspect, adjust, repair, and replace hydraulic clutch slave and master cylinders, lines, and hoses		
A.04	Inspect, adjust, and replace release (throw-out) bearing, lever, and pivot		
A.05	Inspect and replace clutch pressure plate assembly and clutch disc		
A.06	Inspect and replace pilot bearing		
A.07	Inspect, repair, service, or replace flywheel and ring gear		
A.08	Inspect engine block, clutch (bell) housing, and transmission case mating surfaces; determine needed repairs		
A.09	Measure flywheel-to-block runout and crankshaft end play; determine needed repairs		
A.10	Measure clutch (bell) housing bore-to-crankshaft runout and face squareness; determine needed repairs		

OCCUPATION: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTY: Diagnose and Repair Transmission Components

CODE	TASK	TAUGHT	COMMENTS
B.01	Diagnose transmission noise, hard shifting, jumping out of gear, and fluid leakage problems; determine needed repairs		
B.02	Inspect, adjust, and replace column and floor shifter levers. cables, bushings, tubes, and springs		
B.03	Inspect, adjust, and replace transmission shift linkages, brackets, bushings, tubes, and springs		
B.04	Inspect, replace, and align power train mounts		
B.05	Inspect and replace transmission gaskets, seals, and sealants; inspect sealing surfaces		
B.06	Remove and replace transmission		
B.07	Disassemble and clean transmission components		
B.08	Inspect, adjust, and replace transmission shift cover, forks, grommets, levers, shafts, sleeves, detent mechanisms, interlocks, and springs		
B.09	Inspect and replace input (clutch) shaft and bearings		
B.10	Inspect and replace main shaft, gears, thrust, washers, bearings, and retainers		
B.11	Inspect and replace synchronizer hub, sleeve, keys (inserts), springs, and blocking rings		
B.12	Inspect and replace counter (cluster) gear, shaft, bearings, thrust washers, and retainers; check end play, adjust as required		
B.13	Inspect and replace reverse idler gear, shaft, bearings, thrust washers, and retainers; check end play, adjust as required		
B.14	Inspect lubrication devices		
B.15	Inspect, repair, and replace extension housing and transmission case including mating surfaces, bores, bushings, and vents		
B.16	Inspect and replace speedometer drive gear, driven gear, and retainers		

OCCUPATION: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTY: Diagnose and Repair Transaxles

CODE	TASK	TAUGHT	COMMENTS
C.01	Diagnose transaxle noise, hard shifting, jumping out of gear, and fluid leakage problems; determine needed repairs		
C.02	Inspect, adjust, and replace transaxle shift linkages, brackets, bushings, cables, pivots, and levers		
C.03	Inspect, replace, and align power train mounts		
C.04	Inspect and replace transaxle gaskets, seals, and sealants; inspect sealing surfaces		
C.05	Remove and replace transaxle final drive (if applicable)		
C.06	Disassemble and clean transaxle final drive (if applicable)		
C.07	Inspect, adjust, and replace transaxle shift cover, forks, levers, grommets, shafts, sleeves, detent mechanisms, interlocks, and springs		
C.08	Inspect and replace input shaft and bearings		
C.09	Inspect and replace output shaft, gears, thrust washers, bearings, and retainers		
C.10	Measure end play/preload (shim/spacer selection procedure) on all transaxle shafts; adjust as required		
C.11	Inspect and replace synchronizer hub, sleeve, keys (inserts), springs, and blocking rings		
C.12	Inspect and replace reverse idler gear, shaft, bearings, thrust washers, and retainers		
C.13	Inspect, repair, and replace transaxle case including mating surfaces, bores, bushings, and vents		
C.14	Inspect and replace speedometer drive gear, driven gear, and retainers		
C.15	Diagnose differential case assembly noise and vibration problems; determine needed repairs		
C.16	Remove and replace differential case assembly		

OCCUPATION: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTY: Diagnose and Repair Transaxles

CODE	TASK	TAUGHT	COMMENTS
C.17	Inspect, measure, adjust, and replace differential case assembly including pinion gears (spiders), shaft, side gears, thrust washers, and case		
C.18	Inspect and replace differential side bearings		
C.19	Inspect lubrication devices		

OCCUPATION: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTY: Diagnose and Repair Drive (HALF) Shafts and Universal Joints

CODE	TASK	TAUGHT	COMMENTS
D.01	Diagnose FWD and RWD shaft and universal/constant-velocity (CV) joint noise and vibration problems; determine needed repairs		
D.02	Inspect, service, and replace FWD and RWD shafts, yokes, boots, and universal/CV joints		
D.03	Inspect, service, and replace shaft center support bearings		
D.04	Check shaft balance and runout; determine needed repairs		
D.05	Measure and adjust shaft angles		

OCCUPATION: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTY: Diagnose and Repair Rear Axles

CODE	TASK	TAUGHT	COMMENTS
**	**Ring and Pinion Gears/Differential Case Assembly**		
E.01	Diagnose noise, vibration, and fluid leakage problems; determine needed repairs		
E.02	Inspect and replace companion flange and pinion seal		
E.03	Inspect ring gear and measure runout; determine needed repairs		
E.04	Remove and inspect drive pinion gear, spacers, sleeves, and bearings		
E.05	Measure and adjust drive pinion depth		
E.06	Measure and adjust drive pinion bearing preload		
E.07	Measure and adjust side bearing preload and ring and pinion backlash on a differential carrier assembly (threaded cup and shim type)		
E.08	Check ring and pinion tooth contact pattern; make needed adjustments		
E.09	Disassemble, inspect, measure, and adjust or replace differential case assembly including pinion gears (spiders), shaft, side gears, thrust washers, and case		
E.10	Inspect and replace differential side bearings		
E.11	Reassemble and install differential case assembly; measure runout; determine needed repairs		
**	**Limited Slip Differential**		
E.12	Diagnose noise, slippage, and chatter problems; determine needed repairs		
E.13	Inspect, flush, and refill lubricant		
E.14	Inspect, adjust, and replace clutch (cone/plate) components		
E.15	Measure rotating torque at a rear wheel; determine needed repairs		

OCCUPATION: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTY: Diagnose and Repair Rear Axles

COPY	TASK	TAUGHT	COMMENTS
**	**Axle Shaft**		
E.16	Diagnose rear axle shafts, bearings, and seals for noise, vibration, and fluid leakage problems; determine needed repairs		
E.17	Inspect and replace rear axle shaft wheel studs		
E.18	Remove and replace rear axle shafts		
E.19	Inspect and replace rear axle shaft seals, bearings, and retainers		
E.20	R & R axle shaft bearings (pressed-on type)		
E.21	Measure rear axle flange runout and shaft end play; determine needed repairs		

OCCUPATION: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTY: Diagnose and Repair Four-Wheel Drive Components

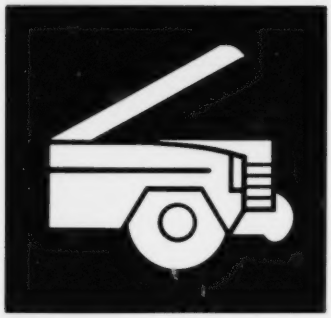
CODE	TASK	TAUGHT	COMMENTS
F.01	Diagnose four-wheel drive assembly noise, vibration, hard shifting, and unusual steering problems; determine needed repairs		
F.02	Inspect, adjust, and repair transfer case shifting mechanisms, bushings, mounts, levers, and brackets		
F.03	R & R four-wheel drive transfer case		
F.04	Inspect and service transfer case and components (includes checking lube level)		
F.05	R & R front-drive axle housing assemblies		
F.06	Inspect, service, and replace front-wheel drive (propeller) shafts and universal joints		
F.07	Inspect, service, and replace front-wheel drive axle knuckles and driving shafts		
F.08	Inspect, service, and replace front-wheel drive bearings and locking hubs		
F.09	Check four-wheel drive unit seals and remote vents		

OCCUPATION: MANUAL DRIVE TRAIN AND AXLES SPECIALIST

DUTY: Perform Shop Organization and Safety Functions

CODE	TASK	TAUGHT	COMMENTS
Z.01	Maintain a clean, safe work environment		
Z.02	Maintain a positive work environment		
Z.03	Apply principles of basic measurement		
Z.04	Use hand tools		
Z.05	Use power tools		
Z.06	Use gas and electric welding equipment		
Z.07	Process work orders		
Z.08	Use shop reference manuals		
Z.09	Use shop lifts		
Z.10	Provide new car servicing; repair accessory or electronic options		

DUTY/TASK LIST
AUTO MECHANICS SERIES



OCCUPATION 4: SUSPENSION AND STEERING SPECIALIST

DUTIES:
- A. Diagnose and Repair Steering Systems
- B. Diagnose and Repair Suspension Systems
- C. Diagnose, Adjust, and Repair Wheel Alignment
- D. Diagnose and Repair Wheels and Tires
- Z. Perform Shop Organization and Safety Functions

YOUR KEY TO THE FUTURE
NATEF
NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

OKLAHOMA OCCUPATIONAL TESTING CENTER

OCCUPATION: SUSPENSION AND STEERING SPECIALIST

DUTY: Diagnose and Repair Steering Systems

CODE	TASK	TAUGHT	COMMENTS
A.00	Identify problems of steering systems diagnosis and repair		
A.01	Diagnose steering column noises, looseness, and binding problems (including tilt mechanisms); determine needed repairs		
A.02	Diagnose manual/power steering gear (non-rack and pinion type) binding, uneven turning effort, looseness, hard steering, and fluid leakage problems; determine needed repairs		
A.03	Diagnose manual/power rack and pinion steering gear vibration, looseness, and hard steering problems; determine needed repairs		
A.04	Inspect and replace steering shaft U-joint(s), flexible coupling(s), collapsible columns, and steering wheels.		
A.05	Remove and replace manual/power steering gear (non-rack and pinion type)		
A.06	Disassemble, inspect, repair, and reassemble manual steering gear (non-rack and pinion type)		
A.07	Adjust manual/power steering gear (non-rack and pinion type), worm bearing preload, and sector lash		
A.08	Remove and replace manual/power rack and pinion steering gear		
A.09	Disassemble, inspect, repair, and reassemble rack and pinion steering gear		
A.10	Adjust manual/power rack and pinion steering gear		
A.11	Inspect and replace manual/power rack and pinion steering gear inner tie rod ends (sockets) and bellows boots		
A.12	Inspect and replace rack and pinion steering gear mounting bushings and brackets		
A.13	Inspect manual and power steering fluid levels and condition; adjust levels in accordance with vehicle manufacturers' recommendations		

OCCUPATION: SUSPENSION AND STEERING SPECIALIST

DUTY: Diagnose and Repair Steering Systems

CODE	TASK	TAUGHT	COMMENTS
A.14	Diagnose power steering fluid leakage; determine needed repairs		
A.15	Inspect, adjust, and replace power steering pump belt(s)		
A.16	Remove and replace power steering pump; inspect pump mounts		
A.17	Inspect and replace power steering pump seals and gaskets		
A.18	Inspect and replace power steering pump pulley		
A.19	Perform power steering system pressure test; determine needed repairs		
A.20	Inspect and replace power steering hoses and fittings		
A.21	Inspect and replace power steering gear (non-rack and pinion type) seals and gaskets		
A.22	Inspect, adjust, and replace non-integral (linkage-assist) power steering control valve		
A.23	Inspect and replace non-integral (linkage-mounted) power steering power cylinder		
A.24	Inspect and replace pitman arm		
A.25	Inspect and replace relay (center link/intermediate) rod		
A.26	Inspect, adjust (where applicable), and replace idler arm and mountings		
A.27	Inspect, replace, and adjust tie rods (sockets), tie rod sleeves, clamps, and tie rod ends		
A.28	Inspect and replace steering linkage damper		
A.29	Check for air in power system; bleed air out of a power steering unit		

OCCUPATION: SUSPENSION AND STEERING SPECIALIST

DUTY: Diagnose and Repair Suspension Systems

CODE	TASK	TAUGHT	COMMENTS
**	**Front Suspensions**		
B.01	Diagnose short and long arm-type suspension system noises, body sway, and uneven riding height problems; determine needed repairs		
B.02	Diagnose MacPherson strut suspension system noises, body sway, and uneven riding height problems; determine needed repairs		
B.03	Inspect and replace upper and lower control arms		
B.04	Inspect and replace upper and lower control arm bushings, shafts, and rebound bumpers		
B.05	Inspect, adjust, and replace strut (compression/tension) rods and bushings		
B.06	Inspect and replace upper and lower ball joints on short and long arm-type suspension systems		
B.07	Inspect and replace steering knuckle assemblies		
B.08	Inspect and replace short and long arm-type front suspension system coil springs and spring insulators		
B.09	Inspect, replace, and adjust front suspension system torsion bars; inspect mounts		
B.10	Inspect and replace stabilizer bar bushings, brackets, and links		
B.11	Inspect and replace ball joints on MacPherson strut suspension systems		
B.12	Inspect and replace MacPherson strut cartridge or assembly		
B.13	Inspect and replace front MacPherson strut coil spring and insulators		
B.14	Lubricate suspension/steering systems		

OCCUPATION: SUSPENSION AND STEERING SPECIALIST

DUTY: Diagnose and Repair Suspension Systems

CODE	TASK	TAUGHT	COMMENTS
**	Rear Suspensions		
B.15	Inspect and replace rear suspension system coil springs and spring insulators		
B.16	Inspect and replace rear suspension system transverse links, control arms, bushings, and mounts		
B.17	Inspect and replace rear suspension system leaf springs, leaf spring insulators (silencers), shackles, brackets, bushings, and mounts		
B.18	Inspect or replace rear MacPherson strut cartridge or assembly		
B.19	Inspect and replace rear MacPherson strut coil spring and insulators		
B.20	Inspect rear-wheel drive axle assembly for bending, warpage, and misalignment		
B.21	Inspect and replace shock absorbers		
B.22	Inspect and replace air shock absorbers, lines, and fittings		
B.23	Inspect and service front- and/or rear-wheel bearings		
B.24	Diagnose, inspect, adjust, repair, or replace components of electronically-controlled air suspension systems		

OCCUPATION: SUSPENSION AND STEERING SPECIALIST

DUTY: Diagnose, Adjust, and Repair Wheel Alignment

CODE	TASK	TAUGHT	COMMENTS
C.00	Identify problems of wheel alignment		
C.01	Diagnose vehicle wandering, pulling, hard steering, and poor steering return problems; determine needed repairs		
C.02	Measure vehicle riding height; determine needed repairs		
C.03	Check and adjust front- and rear-wheel camber on suspension systems with a camber adjustment		
C.04	Check front- and rear-wheel camber on non-adjustable suspension systems; determine needed repairs		
C.05	Check and adjust caster on suspension systems with a caster adjustment		
C.06	Check caster on non-adjustable suspension systems; determine needed repairs		
C.07	Check and adjust front wheel toe		
C.08	Center steering wheel spokes		
C.09	Check toe-out-on-turns (turning radius); determine needed repairs		
C.10	Check SAI (steering axis inclination)/KPI (king pin inclination); determine needed repairs		
C.11	Check and adjust (where applicable) rear wheel toe		
C.12	Check, adjust, and/or repair front-to-rear wheel tracking		

OCCUPATION: SUSPENSION AND STEERING SPECIALIST

DUTY: Diagnose and Repair Wheels and Tires

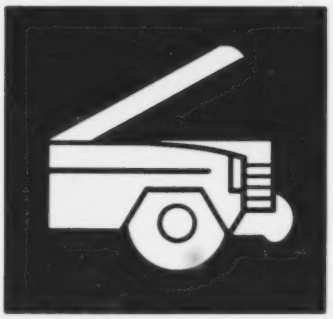
CODE	TASK	TAUGHT	COMMENTS
D.01	Diagnose unusual tire wear patterns; determine needed repairs		
D.02	Inspect tires, check and adjust air pressure		
D.03	Diagnose wheel/tire vibration, shimmy, and tramp problems; determine needed repairs		
D.04	Rotate tires according to manufacturers' recommendations		
D.05	Measure wheel, tire, axle, and hub runout; determine needed repairs		
D.06	Diagnose tire pull (lead) problems; determine corrective actions		
D.07	Perform static and dynamic balance of wheel and tire assemblies		
D.08	Dismount, inspect, repair, and remount tire on wheel		
D.09	Install wheel and torque lug nuts		

OCCUPATION: SUSPENSION AND STEERING SPECIALIST

DUTY: Perform Shop Organization and Safety Functions

CODE	TASK	TAUGHT	COMMENTS
Z.01	Maintain a clean, safe work environment		
Z.02	Maintain a positive work environment		
Z.03	Apply principles of basic measurement		
Z.04	Use hand tools		
Z.05	Use power tools		
Z.06	Use gas and electric welding equipment		
Z.07	Process work orders		
Z.08	Use shop reference manuals		
Z.09	Use shop lifts		
Z.10	Provide new car servicing; repair accessory or electronic options		

DUTY/TASK LIST
AUTO MECHANICS SERIES



OCCUPATION 5: BRAKE SPECIALIST

DUTIES:

A. Diagnose and Repair Hydraulic System

B. Diagnose and Repair Drum Brakes

C. Diagnose and Repair Disc Brakes

D. Diagnose and Repair Power Assist Units

E. Repair Miscellaneous Components (Wheel Bearings, Parking Brakes, Electrical, etc.)

Z. Perform Shop Organization and Safety Functions

YOUR KEY TO THE FUTURE
NATEF
NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

OKLAHOMA OCCUPATIONAL TESTING CENTER

OCCUPATION: BRAKE SPECIALIST

DUTY: Diagnose and Repair Hydraulic System

CODE	TASK	TAUGHT	COMMENTS
A.00	Identify problems of hydraulic system diagnosis and repair		
A.01	Diagnose poor stopping or dragging caused by problems in the master cylinder; determine needed repairs		
A.02	Diagnose poor stopping, dragging, high/low pedal, or hard pedal caused by problems in a step bore master cylinder and internal valves (e.g. volume control devices, quick take-up valve, fast-fill valve, pressure regulating valve); determine needed repairs		
A.03	Measure and adjust pedal pushrod length		
A.04	Check master cylinder for internal and external leaks and proper operation; determine needed repairs		
A.05	Remove, bench bleed, and replace master cylinder		
A.06	Diagnose poor stopping, pulling, or dragging caused by problems in the brake fluid, lines, and hoses; determine needed repairs		
A.07	Inspect brake lines and fittings for leaks, dents, kinks, rust, cracks, or wear; tighten loose fittings and supports		
A.08	Inspect flexible brake hoses for leaks, kinks, cracks, bulging, or wear; tighten loose fittings and supports		
A.09	Replace brake lines (double flare and ISO types), hoses, fittings, and supports		
A.10	Select, handle, store, and install brake fluids (including silicone fluids)		
A.11	Diagnose poor stopping, pulling, or dragging caused by problems in the hydraulic system valve(s)		
A.12	Inspect, test, and replace metering (hold-off), proportioning (balance), pressure differential, and combination valves		
A.13	Inspect, test, replace, and adjust load or height sensing-type proportioning valve(s)		

OCCUPATION: BRAKE SPECIALIST

DUTY: Diagnose and Repair Hydraulic System

CODE	TASK	TAUGHT	COMMENTS
A.14	Inspect, test, and replace brake warning light system switch and wiring		
A.15	Re-set brake pressure differential valve (if necessary)		
A.16	Bleed (manual, pressure, vacuum, or surge) and/or flush hydraulic system		
A.17	Check and adjust master cylinder fluid levels		

OCCUPATION: BRAKE SPECIALIST

DUTY: Diagnose and Repair Drum Brakes

CODE	TASK	TAUGHT	COMMENTS
B.01	Diagnose poor stopping, pulling, or dragging caused by problems in the drum brake wheel assembly; determine needed repairs		
B.02	Diagnose poor stopping, noise, pulling, grabbing, dragging, or pedal pulsation caused by problems in the drum brake mechanical assembly; determine needed repairs		
B.03	Remove, clean, inspect, and measure brake drums		
B.04	Mount brake drum on lathe and machine		
B.05	Remove, clean, and inspect brake shoes/linings, springs, pins, clips, levers, adjusters/self-adjusters, and other related brake hardware; determine needed repairs		
B.06	Clean and remove loose dirt, rust, or scale on brake backing (support) plates using proper safety procedures; inspect; R & R if necessary		
B.07	Remove and reinstall wheel cylinders		
B.08	Disassemble and clean wheel cylinder assembly; inspect parts for wear, rust, scoring, and damage; hone cylinder (if necessary and recommended by manufacturer); replace all cups, boots, and any damaged or worn parts		
B.09	Lubricate brake shoe support pads on backing (support) plate, adjuster/self-adjuster mechanisms, and other brake hardware		
B.10	Determine correct brake shoe application		
B.11	Install brake shoes and related hardware		
B.12	Adjust brake shoes and reinstall brake drums or drum/hub assemblies and wheel bearings		
B.13	Reinstall wheel, torque lug nuts, and make final checks and adjustments		

OCCUPATION: BRAKE SPECIALIST

DUTY: Diagnose and Repair Disc Brakes

CODE	TASK	TAUGHT	COMMENTS
C.01	Diagnose poor stopping, pulling, or dragging caused by problems in the disc brake caliper assembly; determine needed repairs		
C.02	Diagnose poor stopping, noise, pulling, grabbing, dragging, or pedal pulsation caused by problems in the disc brake mechanical assembly; determine needed repairs		
C.03	Remove caliper assembly from mountings; clean and inspect for leaks and damage to caliper housing		
C.04	Clean and inspect caliper mountings and slides for wear and damage		
C.05	Remove, clean, and inspect pads and retaining hardware; determine needed repairs, adjustments, and replacements		
C.06	Remove, disassemble, and clean caliper assembly; inspect parts for wear, rust, scoring, and damage; replace all seals, boots, and any damaged or worn parts		
C.07	Reassemble caliper; reinstall		
C.08	Clean, inspect, and measure rotor with a dial indicator and a micrometer		
C.09	Remove rotor, mount on lathe, and machine		
C.10	Determine correct brake pad application		
C.11	Install pads, calipers, and related attaching hardware		
C.12	Adjust calipers with integrated parking brakes		
C.13	Fill master cylinder with recommended fluid to proper level and seat pads by depressing pedal; inspect caliper for leaks		
C.14	Reinstall wheel, torque lug nuts, and make final checks and adjustments		

OCCUPATION: BRAKE SPECIALIST

DUTY: Diagnose and Repair Power Assist Units

CODE	TASK	TAUGHT	COMMENTS
D.01	Test pedal free travel with and without engine running to check power booster operation		
D.02	Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster with a vacuum gauge		
D.03	Inspect the vacuum-type power booster unit for vacuum leaks; inspect the check valve for proper operation; repair or replace parts as necessary		
D.04	Inspect and test hydro-boost system and accumulator for leaks and proper operation; repair and replace parts as necessary		

OCCUPATION: BRAKE SPECIALIST

DUTY: Repair Miscellaneous Components (Wheel Bearings, Parking Brakes, Electrical, etc.)

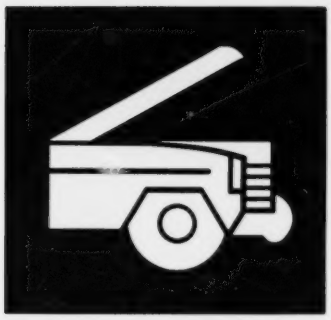
CODE	TASK	TAUGHT	COMMENTS
E.01	Diagnose wheel bearing noises, wheel shimmy, and vibration problems; determine needed repairs		
E.02	Remove, clean, inspect, repack, or replace and pack wheel bearings, replace seals, and adjust wheel bearings		
E.03	Check parking brake system; inspect cables and parts for wear, rusting, binding, and corrosion; clean or replace parts as necessary; lubricate assembly		
E.04	Adjust parking brake assembly; check operation		
E.05	Test parking brake indicator light, switch, and wiring		
E.06	Test, adjust, repair, or replace brake stop light switch and wiring		
E.07	Check operation of anti-skid braking systems; adjust or repair according to manufacturers' recommendations		

OCCUPATION: BRAKE SPECIALIST

DUTY: Perform Shop Organization and Safety Functions

CODE	TASK	TAUGHT	COMMENTS
Z.01	Maintain a clean, safe work environment		
Z.02	Maintain a positive work environment		
Z.03	Apply principles of basic measurement		
Z.04	Use hand tools		
Z.05	Use power tools		
Z.06	Use gas and electric welding equipment		
Z.07	Process work orders		
Z.08	Use shop reference manuals		
Z.09	Use shop lifts		
Z.10	Provide new car servicing; repair accessory and electronic options		

DUTY/TASK LIST
AUTO MECHANICS SERIES



OCCUPATION 6: ELECTRICAL SYSTEMS SPECIALIST

DUTIES:

A. Diagnose General Electrical Systems

B. Diagnose and Service Battery Components

C. Diagnose and Repair Starting Systems

D. Diagnose and Repair Charging System

E. Diagnose and Repair Lighting Systems

F. Diagnose and Repair Gauges, Warning Devices, and Driver Information Systems

G. Diagnose and Repair Horn and Wiper/Washer Components

H. Diagnose and Repair Accessories

Z. Perform Shop Organization and Safety Functions

YOUR KEY TO THE FUTURE
ASE NATEF
NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

OKLAHOMA OCCUPATIONAL TESTING CENTER

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose General Electrical Systems

CODE	TASK	TAUGHT	COMMENTS
A.00	Identify problems of diagnosing the general electrical system		
A.01	Check continuity in electrical circuits with a test light		
A.02	Check applied voltages and voltage drops in electrical circuits with analog and digital voltmeters		
A.03	Check current flow in electrical circuits and components with an ammeter		
A.04	Check continuity and resistances in electrical circuits and components with analog and digital ohmmeters		
A.05	Find shorts and grounds in electrical circuits		
A.06	Diagnose the cause(s) of a constant battery drain		
A.07	Inspect, test, and replace fusible links, circuit breakers, and fuses		
A.08	Replace a terminal end		
A.09	Splice a wire		
A.10	Identify problems of diagnosing the general electrical system		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Service Battery Components

CODE	TASK	TAUGHT	COMMENTS
B.00	Identify problems of battery servicing		
B.01	Perform battery state-of-charge test; determine needed service		
B.02	Perform battery capacity (load, high-rate discharge) test; determine needed service		
B.03	Perform battery 3-minute charge test; determine needed service		
B.04	Inspect, clean, fill, or replace battery		
B.05	Slow and fast charge conventional and maintenance free batteries		
B.06	Inspect, clean, and repair or replace battery cables, connectors, and clamps		
B.07	Jump start a vehicle with jumper cables and a booster battery or auxiliary power supply		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Repair Starting Systems

CODE	TASK	TAUGHT	COMMENTS
C.01	Perform starter current draw test; determine needed repairs		
C.02	Perform starter circuit voltage drop tests; determine needed repairs		
C.03	Inspect, test, and repair or replace switches, connectors, and wires of starter control circuits		
C.04	Inspect, test, and replace starter relays and solenoids		
C.05	Remove and replace starter		
C.06	Disassemble and clean starter components		
C.07	Inspect and replace starter drive		
C.08	Inspect and replace starter brushes and brush holders		
C.09	Inspect and replace starter bushings and end frames		
C.10	Inspect and test starter field coils		
C.11	Inspect, test, and replace starter armature		
C.12	Perform starter free-running (bench) tests; determine needed repairs		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Repair Charging System

CODE	TASK	TAUGHT	COMMENTS
D.00	Identify problems of the charging system		
D.01	Diagnose charging system problems that cause an undercharge or a no-charge condition		
D.02	Diagnose charging system problems that cause an overcharge condition		
D.03	Inspect, adjust, and replace alternator drive belts, pulley, and fans		
D.04	Perform charging system output test; determine needed repairs		
D.05	Perform alternator output test; determine needed repairs		
D.06	Perform voltage regulator tests; determine needed repairs		
D.07	Remove and replace regulator		
D.08	Perform charging circuit voltage drop test; determine needed repairs		
D.09	Inspect and repair or replace connectors and wire of charging circuits		
D.10	Remove and replace alternator		
D.11	Disassemble and clean alternator components; inspect and repair or replace connectors and wires		
D.12	Inspect and replace alternator bearings and end frames		
D.13	Inspect and replace alternator brushes and brush holders		
D.14	Inspect, test, and replace alternator diodes or diode (rectifier) assembly		
D.15	Inspect, test, and replace alternator stator		
D.16	Inspect, test, and replace alternator rotor		
D.17	Inspect, test, and replace alternator capacitor		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Repair Lighting Systems

CODE	TASK	TAUGHT	COMMENTS
**	**Headlights, Parking Lights, Taillights, Dash Lights, and Courtesy Lights**		
E.01	Diagnose the cause of brighter than normal, intermittent, dim, or no headlight operation		
E.02	Test, replace, and aim headlights/bulbs		
E.03	Inspect, test, and repair or replace headlight and dimmer switches, relays, sockets, connectors, and wire of headlight circuits		
E.04	Diagnose the cause of intermittent, slow, or no retractable headlight assembly operation		
E.05	Inspect, test, and repair or replace motors, switches, relays, connectors, and wires of retractable headlight assembly circuits		
E.06	Diagnose the cause of brighter than normal, intermittent, dim, or no parking light and/or taillight operation		
E.07	Inspect, test, and repair or replace switches, relays, bulbs, sockets, connectors, and wires of parking light and taillight circuits		
E.08	Diagnose the cause of intermittent, dim, no lights, or no brightness control of dash light circuits		
E.09	Inspect, test, and repair or replace switches, relays, bulbs, sockets, connectors, wires, and printed circuit boards of dash light circuits		
E.10	Diagnose the cause of intermittent, dim, or no courtesy light operation		
E.11	Inspect, test, and repair or replace switches, relays, bulbs, sockets, connectors, and wires of courtesy light circuits		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Repair Lighting Systems

CODE	TASK	TAUGHT	COMMENTS
**	**Stoplights, Turn Signals, Hazard Lights, and Back-Up Lights**		
E.12	Diagnose the cause of intermittent, dim, or no stoplight operation		
E.13	Inspect, test, and adjust or replace stoplight switch		
E.14	Inspect, test, and repair or replace bulbs, sockets, connectors, and wires of stoplight circuits		
E.15	Diagnose the cause of no turn signal and hazard lights or lights with no flash on one or both sides		
E.16	Inspect, test, and replace turn signal and hazard light switches and flasher units		
E.17	Inspect, test, and repair or replace bulbs, sockets, connectors, and wires of turn signal and hazard light circuits		
E.18	Diagnose the cause of intermittent, dim, or no back-up light operation		
E.19	Inspect, test, and adjust or replace back-up light switch		
E.20	Inspect, test, and repair or replace bulbs, sockets, connectors, and wires of back-up light circuits		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Repair Gauges, Warning Devices, and Driver Information Systems

CODE	TASK	TAUGHT	COMMENTS
F.01	Diagnose the cause of intermittent, high, low, or no gauge readings (Note: Diagnosing causes of abnormal charging system gauge readings limited to dash units and their electrical connections; other causes of abnormal charging system gauge readings are covered in DIAGNOSIS AND REPAIR OF THE CHARGING SYSTEM)		
F.02	Test and replace gauge circuit voltage regulators (limiters)		
F.03	Inspect, test, and replace gauges and gauge sending units		
F.04	Inspect, test, and repair or replace connectors, wires, and printed circuit board of gauge circuits		
F.05	Diagnose the cause of constant, intermittent, or no warning light/driver information system operation (Note: Diagnosing causes of abnormal charging system warning light operation limited to dash units and their electrical connections; other causes of abnormal charging system warning light operation are covered in DIAGNOSING AND REPAIR OF THE CHARGING SYSTEM)		
F.06	Inspect, test, and repair or replace bulbs, sockets, connectors, wires, and electronic components of warning light/driver information system circuits		
F.07	Diagnose the cause of constant, intermittent, or no operation of audible warning devices		
F.08	Inspect, test, and repair or replace switches, relays, timers, electronic components, printed circuits, connectors, and wires of audible warning device circuits		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Repair Horn and Wiper/Washer Components

CODE	TASK	TAUGHT	COMMENTS
G.01	Diagnose the cause of constant, intermittent, or no horn operation		
G.02	Inspect, test, and repair or replace horn(s), horn relay, horn button (switch), connectors, and wires of horn circuits		
G.03	Diagnose the cause of constant, intermittent, or no wiper operation; diagnose the cause of wiper speed control and park problems		
G.04	Inspect, test, and replace intermittent (pulsing) wiper speed controls		
G.05	Inspect, test, and replace wiper motor resistor and park switch or relay		
G.06	Inspect, test, and repair or replace switches, connectors, and wires of wiper circuits		
G.07	Diagnose the cause of constant, intermittent, or no windshield washer operation		
G.08	Inspect, test, and replace washer motor or pump/relay assembly		
G.09	Inspect, test, and repair or replace switches, connectors, and wires of washer circuits		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Repair Accessories

CODE	TASK	TAUGHT	COMMENTS
**	Body		
H.01	Diagnose the cause of slow, intermittent, or no power side window and power tailgate window operation		
H.02	Inspect and adjust or replace power side window and power tailgate window regulators (linkages)		
H.03	Inspect, test, and repair or replace switches, relays, motors, connectors, and wires of power side window and power tailgate window circuits		
H.04	Diagnose the cause of slow, intermittent, or no power seat operation		
H.05	Inspect, test, and repair or replace switches, relays, solenoids, motors, connectors, and wires of power seat circuits		
H.06	Inspect and adjust or replace power seat gear box, cables, and slave units		
H.07	Inspect the cause of poor, intermittent, or no rear window defogger operation		
H.08	Inspect, test, and repair or replace switches, relays, window grid, blower motors, connectors, and wires of rear window defogger circuits		
H.09	Diagnose the cause of poor, intermittent, or no electric door and hatch/trunk lock operation		
H.10	Inspect, test, and repair or replace switches, relays, actuators, connectors, and wires of electric door and hatch/trunk lock circuits		
H.11	Diagnose the cause of poor, intermittent, or no keyless lock/unlock device operation		
H.12	Inspect, test, and repair or replace components, connectors, and wires of keyless lock/unlock device circuits		
H.13	Diagnose the cause of slow, intermittent, or no electrically-operated sunroof and electrically-operated convertible top operation		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Repair Accessories

CODE	TASK	TAUGHT	COMMENTS
H.14	Inspect, test, and repair or replace motors, switches, relays, connectors, and wires of electrically-operated sunroof and electrically-operated and electrically-heated mirror operation		
H.15	Diagnose the cause of poor, intermittent, or no electrically-operated and electrically-heated mirror operation		
H.16	Inspect, test, and repair or replace motors, heated mirror grids, switches, relays, connectors, and wires of electrically-operated and electrically-heated mirror circuits		
**	Miscellaneous		
H.17	Diagnose the cause of radio static and weak, intermittent, or no radio reception		
H.18	Inspect, test, and repair or replace grounds, connectors, and wires of sound system circuits		
H.19	Inspect, test, and replace speakers		
H.20	Inspect, test, and replace radio antenna and lead		
H.21	Inspect, test, and repair or replace switches, motor, connectors, and wires of power antenna circuits		
H.22	Inspect, test, and replace noise suppression components		
H.23	Trim (adjust) radio antenna		
H.24	Inspect, test, and repair or replace case, integral fuse, connectors, and wires of cigar lighter circuits		
H.25	Inspect, test, and repair or replace clock, connectors, and wires of clock circuits		
H.26	Diagnose the cause of unregulated, intermittent, or no cruise control operation		
H.27	Inspect, test, and repair or replace switches, relays, electronic control units, speed signal generators, connectors, and wires of cruise control circuits		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Diagnose and Repair Accessories

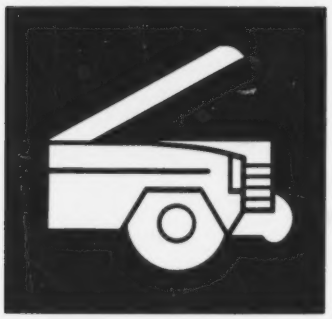
CODE	TASK	TAUGHT	COMMENTS
H.28	Inspect, test, adjust, and repair or replace cruise control speedometer cables, regulator, servo, and hoses		
H.29	Diagnose the cause of poor, intermittent, or no anti-theft system operation		
H.30	Inspect, test, and repair or replace components, switches, relays, connectors, and wires of anti-theft circuits		

OCCUPATION: ELECTRICAL SYSTEMS SPECIALIST

DUTY: Perform Shop Organization and Safety Functions

CODE	TASK	TAUGHT	COMMENTS
Z.01	Maintain a clean, safe work environment		
Z.02	Maintain a positive work environment		
Z.03	Apply principles of basic measurement		
Z.04	Use hand tools		
Z.05	Use power tools		
Z.06	Use gas and electric welding equipment		
Z.07	Process work orders		
Z.08	Use shop reference manuals		
Z.09	Use shop lifts		
Z.10	Provide new car servicing; repair accessory or electronic options		

DUTY/TASK LIST
AUTO MECHANICS SERIES



OCCUPATION 7: HEATING AND AIR CONDITIONING SPECIALIST

DUTIES:

A. Diagnose and Repair Air Conditioning System

B. Diagnose and Repair Refrigeration System Components

C. Diagnose and Repair Heating and Engine Cooling Systems

D. Diagnose and Repair Control Units

Z. Perform Shop Organization and Safety Functions

YOUR KEY TO THE FUTURE
NATEF
NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

OKLAHOMA OCCUPATIONAL TESTING CENTER

OCCUPATION: HEATING AND AIR CONDITIONING SPECIALIST

DUTY: Diagnose and Repair Air Conditioning System

CODE	TASK	TAUGHT	COMMENTS
A.00	Identify, diagnose, and repair A/C system problems		
A.01	Diagnose the cause of unusual operating noises of the A/C system		
A.02	Performance test (troubleshoot) the A/C system; determine needed repairs		
A.03	Diagnose A/C system problems indicated by R-12 flow past the sight glass (for systems using a sight glass)		
A.04	Diagnose A/C system problems indicated by pressure gauge readings		
A.05	Diagnose A/C system problems indicated by visual and touch procedures		
A.06	Leak test A/C system and determine needed repairs		
A.07	Partially charge A/C system		
A.08	Purge A/C system of excessive R-12 and bring to proper charge		
A.09	Discharge A/C system of R-12		
A.10	Evacuate the A/C system		
A.11	Charge A/C system with R-12 (liquid or vapor)		
A.12	Inspect and add oil to A/C system		

OCCUPATION: HEATING AND AIR CONDITIONING SPECIALIST

DUTY: Diagnose and Repair Refrigeration System Components

CODE	TASK	TAUGHT	COMMENTS
**	**Compressor and Clutch**		
B.01	Diagnose A/C system problems that cause the pressure protection devices to shut off the system		
B.02	Inspect and replace A/C system pressure protection devices		
B.03	Inspect, adjust, and replace A/C compressor drive belts and pulleys		
B.04	Inspect, test, service, and replace A/C compressor clutch components or assembly		
B.05	Inspect and add oil to A/C compressor		
B.06	Inspect, test, and replace A/C compressor and mountings		
B.07	Inspect and replace A/C compressor shaft seal assembly(s)		
B.08	Inspect and replace A/C compressor valve assembly(s) and gasket(s)/O-ring(s)		
**	**Evaporator, Receiver/Drier, Condenser, Etc.**		
B.09	Diagnose A/C system problems caused by too much moisture in the R-12		
B.10	Flush A/C system components and hoses		
B.11	Inspect, repair, or replace A/C system mufflers, hoses, lines, fittings, and seals		
B.12	Inspect A/C condenser for air flow restrictions and clean and straighten fins		
B.13	Inspect, test, and replace A/C system condenser and mountings		
B.14	Inspect and replace receiver/drier		
B.15	Inspect and replace accumulator/drier in cycling clutch orifice tube A/C systems		
B.16	Inspect, test, and replace expansion valve		

OCCUPATION: HEATING AND AIR CONDITIONING SPECIALIST

DUTY: Diagnose and Repair Refrigeration System Components

CODE	TASK	TAUGHT	COMMENTS
B.17	Inspect, test, and replace orifice (expansion) tube		
B.18	Inspect, test, and replace evaporator		
B.19	Inspect and repair evaporator housing water drain		
B.20	Inspect, test, and replace evaporator pressure control systems and devices		
B.21	Inspect and replace A/C system service (gauge connection) valves		
B.22	Diagnose A/C system problems that cause the high pressure relief device to release		
B.23	Inspect and replace A/C system high pressure relief device		
B.24	Inspect and replace desiccant bag in a VIR assembly		

OCCUPATION: HEATING AND AIR CONDITIONING SPECIALIST

DUTY: Diagnose and Repair Heating and Engine Cooling Systems

CODE	TASK	TAUGHT	COMMENTS
C.01	Diagnose the cause of too little or too much heat and poor temperature control problems of the heater/vent system		
C.02	Diagnose window fogging problems		
C.03	Perform cooling system tests; determine needed repairs		
C.04	Inspect and replace engine cooling and heater system hoses and belts		
C.05	Inspect, test, and replace radiator, pressure cap, expansion tank, and water pump		
C.06	Inspect, test, and replace thermostat, by-pass, and housing		
C.07	Inspect coolant, drain, flush, and refill cooling system with proper coolant		
C.08	Clean, inspect, test, and replace fan, fan clutch (both electrical and mechanical), and fan shroud		
C.09	Inspect, test, and replace heater coolant control valve (manual, vacuum, and electrical types)		
C.10	Inspect, flush, and replace heater core		

OCCUPATION: HEATING AND AIR CONDITIONING SPECIALIST

DUTY: Diagnose and Repair Control Units

CODE	TASK	TAUGHT	COMMENTS
**	**Electrical**		
D.01	Diagnose the cause of failures in the electrical controls of heating and A/C systems		
D.02	Inspect, test, repair, and replace A/C-heater blower motors, resistors, switches, relays, wiring, and protection devices		
D.03	Inspect, test, repair, and replace A/C compressor clutches, relays, wiring, sensors, switches, and protection devices		
D.04	Inspect, test, repair, replace, and adjust A/C-controlled engine idle systems		
D.05	Inspect, test, repair, replace, and adjust A/C compressor throttle-controlled cut-off systems		
D.06	Inspect, test, repair, and replace engine cooling/ condenser cooling fan motors, relays, switches, sensors, wiring, and protection devices		
D.07	Diagnose the cause of failures in the vacuum and mechanical controls of the heating and A/C system		
D.08	Inspect, test, service, and replace A/C-heater control panel assembly		
D.09	Inspect, test, adjust, and replace A/C-heater control cables and linkages		
D.10	Inspect, test, and replace A/C-heater vacuum control switches and hoses		
D.11	Inspect, test, adjust, and replace A/C-heater vacuum diaphragms (motors)		
D.12	Inspect, test, and replace A/C-heater vacuum reservoir, check valve, and restrictors		
D.13	Inspect, test, and repair A/C-heater ducts, doors, hoses, and outlets		

OCCUPATION: HEATING AND AIR CONDITIONING SPECIALIST

DUTY: Diagnose and Repair Control Units

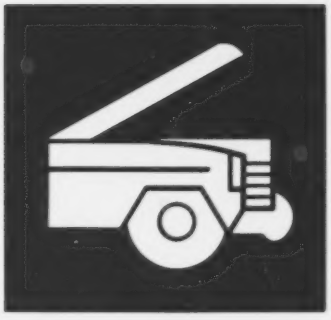
CODE	TASK	TAUGHT	COMMENTS
**	**Automatic and Semi-Automatic Temperature Controls**		
D.14	Inspect, test, and replace ambient and in-car sensor systems		
D.15	Inspect, test, and replace power servo (vacuum or electric) system		
D.16	Inspect, test, and replace coolant temperature blower control system		
D.17	Inspect, test, and replace heater valve and controls		
D.18	Diagnose and repair temperature control system problems		
D.19	Diagnose and repair blower system problems		
D.20	Diagnose and repair air distribution system problems		
D.21	Inspect, test, and replace electric and vacuum motors, solenoids, and switches		
D.22	Inspect, test, and replace ATC control panel		

OCCUPATION: HEATING AND AIR CONDITIONING SPECIALIST

DUTY: Perform Shop Organization and Safety Functions

CODE	TASK	TAUGHT	COMMENTS
Z.01	Maintain a clean, safe work environment		
Z.02	Maintain a positive work environment		
Z.03	Apply principles of basic measurement		
Z.04	Use hand tools		
Z.05	Use power tools		
Z.06	Use gas and electric welding equipment		
Z.07	Process work orders		
Z.08	Use shop reference manuals		
Z.09	Use shop lifts		
Z.10	Provide new car servicing; repair accessory or electronic options		

DUTY/TASK LIST
AUTO MECHANICS SERIES



OCCUPATION 8: ENGINE PERFORMANCE SPECIALIST

DUTIES:

A. Diagnose Engines, General

B. Diagnose and Repair Ignition System

C. Diagnose and Repair Fuel and Exhaust Systems

D. Diagnose and Repair Emission Control Systems

E. Perform Engine Related Service

Z. Perform Shop Organization and Safety Functions

NATEF
NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

OKLAHOMA OCCUPATIONAL TESTING CENTER

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Diagnose Engines, General

CODE	TASK	TAUGHT	COMMENTS
A.00	Identify problems of diagnosing general engine components		
A.01	Verify complaint and/or road test vehicle; determine needed repairs		
A.02	Inspect engine assembly for fuel, oil coolant, and other leaks; determine needed repairs		
A.03	Diagnose the cause of unusual exhaust color, odor, and sound; determine needed repairs		
A.04	Perform engine vacuum tests; determine needed repairs		
A.05	Perform cylinder power balance test; determine needed repairs		
A.06	Perform cylinder compression test; determine needed repairs		
A.07	Perform cylinder leakage test; determine needed repairs		
A.08	Diagnose engine mechanical, ignition, or fuel problems with an oscilloscope and/or engine analyzer; determine needed repairs		
A.09	Inspect and adjust infrared analyzer, inspect vehicle's exhaust system; obtain exhaust gas readings		
A.10	Diagnose engine mechanical, ignition, fuel, or emissions control problems with infrared exhaust analyzer; determine needed repairs		
A.11	Perform analytic/diagnostic procedures on vehicles with on-board or self-diagnostic type computer systems; determine needed repairs		
A.12	Inspect, test, adjust, and replace sensor components and circuits of electronic control systems		

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Diagnose and Repair Ignition System

CODE	TASK	TAUGHT	COMMENTS
B.00	Identify problems of the ignition system		
B.01	Diagnose no-starting, hard starting, engine misfire, poor driveability, abnormal combustion, power loss, and/or poor mileage problems on cars with point-type ignition systems; determine needed repairs		
B.02	Diagnose no-starting, hard starting, engine misfire, poor driveability, abnormal combustion, power loss, and/or poor mileage problems on cars with electronic ignition systems; determine needed repairs		
B.03	Inspect, test, repair, or replace ignition primary circuit wiring and components		
B.04	Remove distributor; inspect, test, and service to include drives, shaft, bushings, cam, breaker plate, and vacuum, mechanical, and/or electrical advance/retard units; reinstall		
B.05	Inspect, test, adjust, service, repair, or replace ignition points and condenser		
B.06	Inspect, test, service, repair, or replace ignition system secondary circuit wiring and components		
B.07	Inspect, test, and replace ignition coil		
B.08	Check and adjust ignition system timing and timing advance		
B.09	Inspect, test, and replace electronic ignition wiring harness and connectors		
B.10	Inspect, test, and replace electronic ignition system pick-up sensor or trigger devices		
B.11	Inspect, test, and replace electronic ignition system control unit (module)		
B.12	Check base ignition timing and timing advance on computer controlled system		
B.13	Test glow plug system		

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Diagnose and Repair Ignition System

CODE	TASK	TAUGHT	COMMENTS
B.14	Test glow plug		
B.15	Remove and replace glow plug		
B.16	Test and adjust distributor on a distributor tester		
B.17	Remove, inspect, service, and replace spark plugs		

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Diagnose and Repair Fuel and Exhaust Systems

CODE	TASK	TAUGHT	COMMENTS
C.00	Identify problems of the fuel and exhaust systems		
C.01	Diagnose no-starting, hard starting, poor idle, flooding, hesitation, surging, engine misfire, power loss, poor mileage, and/or dieseling problems on cars with carburetor type fuel systems; determine needed repairs		
C.02	Diagnose no-starting, hard starting, poor idle, flooding, hesitation, surging, engine misfire, power loss, poor mileage, and/or dieseling problems on cars with injection type fuel systems; determine needed repairs		
C.03	Inspect gas tank, gas tank filter, and gas cap; inspect and replace fuel lines and hoses; check fuel for contaminants		
C.04	Inspect, test, and replace fuel pumps, pump controls; inspect, service, and replace fuel filters		
C.05	Inspect, clean, adjust, test, repair, or replace cold enrichment systems		
C.06	Inspect, adjust, and replace carburetor float, needle, and seat		
C.07	Inspect, test, adjust, and replace carburetor accelerator pump system and components		
C.08	Inspect, test, adjust, and replace fuel injection acceleration enrichment system and components		
C.09	Inspect, test, adjust, and replace carburetor idle compensator valves and bowl vents		
C.10	Remove and replace carburetor/fuel injection throttle body and adjust related linkages		
C.11	Rebuild carburetor including disassembling, cleaning, replacing faulty parts, adjusting, and assembling		
C.12	Inspect, clean, or replace carburetor mounting plates, fuel injection air induction system, intake manifold, and gaskets		

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Diagnose and Repair Fuel and Exhaust Systems

CODE	TASK	TAUGHT	COMMENTS
C.13	Adjust non-computer controlled carburetor idle speed		
C.14	Adjust carburetor idle speed and fuel mixture by the propane enrichment adjustment method		
C.15	Adjust carburetor-fuel injection idle speed and fuel mixture on closed-loop fuel control systems		
C.16	Inspect, test, clean, adjust, and replace components of carburetor/fuel injection closed-loop fuel control systems		
C.17	Inspect, service, and adjust automatic choke		
C.18	Inspect and service carburetor air cleaner and element		
C.19	Remove and replace fuel injection nozzle		
C.20	Remove and replace fuel injection pump		
C.21	Inspect turbocharger system for proper operation; repair as needed		
C.22	Remove and replace fuel tank		
C.23	Remove and replace fuel gauge sending unit		
C.24	Time diesel engine injection pump		
C.25	Remove and replace diesel injector		
C.26	Remove and replace diesel injector line		
C.27	Test diesel injector spray pattern		
C.28	Test calibration of diesel injector lines		
C.29	Bleed diesel fuel system		
C.30	Service diesel fuel filters		
C.31	Test oxygen sensor		
C.32	Remove and replace oxygen sensor		
C.33	Inspect, service, and replace exhaust manifold, exhaust pipes, mufflers, resonators, tail pipes, and heat shields		

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Diagnose and Repair Emission Control Systems

CODE	TASK	TAUGHT	COMMENTS
**	**Positive Crankcase Ventilation**		
D.01	Test the operation of positive crankcase ventilation (PCV) systems		
D.02	Inspect, service, and replace positive crankcase ventilation (PCV) valve		
D.03	Inspect, service, and replace positive crankcase ventilation (PCV) filter (breather cap), tubes, and hoses		
**	**Spark Timing Controls**		
D.04	Test the operation of spark control systems		
D.05	Inspect, test, repair, and replace electrical/electronic components and circuits of spark control systems		
D.06	Inspect, test, repair, and replace thermal, mechanical, or vacuum components and hoses of spark control systems		
**	**Idle Speed Controls**		
D.07	Test the operation of idle speed control systems		
D.08	Inspect, test, adjust, and replace sensors, solenoids, vacuum valves, motors, switches, circuits, and hoses of idle speed control systems		
D.09	Test the operation of decel control systems		
D.10	Inspect, test, adjust, and replace electrical components, circuits, vacuum components, and hoses of decel control systems		
**	**Exhaust Gas Recirculation**		
D.11	Test the operation of exhaust gas recirculation (EGR) systems		
D.12	Inspect, test, repair, and replace valve, valve manifold, and exhaust passages of exhaust gas recirculation (EGR) systems		

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Diagnose and Repair Emission Control Systems

CODE	TASK	TAUGHT	COMMENTS
D.13	Inspect, test, repair, and replace vacuum/pressure controls and hoses of exhaust gas recirculation (EGR) systems		
D.14	Inspect, test, repair, and replace electrical/electronic controls and wiring of exhaust gas recirculation (EGR) systems		
**	**Exhaust Gas Treatment**		
D.15	Test the operation of pump-type air injection systems		
D.16	Inspect, test, service, and replace pump, pressure relief valve, filter, pulley, and belt of pump-type air injection systems		
D.17	Inspect, test, and replace vacuum-operated air control valves and vacuum hoses of pump-type air injection systems		
D.18	Inspect and replace electrical/electronic-operated air control valves and circuits of pump-type air injection systems		
D.19	Inspect, service, and replace hoses, check valves, air manifolds, and nozzles of pump-type air injection systems		
D.20	Test the operation of exhaust pulse-type air injection systems		
D.21	Inspect, test, and replace pulse air valve(s) and hoses of exhaust pulse-type air injection systems		
D.22	Inspect, test, service, and replace converter catalyst or converter(s) of catalytic converter systems		
**	**Inlet Air Temperature Controls**		
D.23	Test the operation of inlet air temperature control systems		
D.24	Inspect, test, and replace sensors, diaphragm, and hoses of inlet air temperature control systems		
D.25	Inspect, test, and replace heat stove shroud, hot air pipe, and damper of inlet air temperature control systems		

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Diagnose and Repair Emission Control Systems

CODE	TASK	TAUGHT	COMMENTS
**	**Intake Manifold Heat Controls**		
D.26	Inspect, service, and replace manifold heat control (heat riser) valves		
D.27	Test the operation of electrical/vacuum/coolant-type manifold heat control systems		
D.28	Inspect, test, repair, or replace components of electrical/vacuum/coolant-type manifold heat control systems		
**	**Fuel Vapor Controls**		
D.29	Test the operation of fuel vapor control systems		
D.30	Inspect, service, and replace canister, filter, and purge lines of fuel vapor control systems		
D.31	Inspect, service, and replace canister, filter, and purge lines of fuel vapor control systems		
D.32	Inspect, test, and replace thermal, vacuum, and electrical controls of fuel vapor control systems		

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Perform Engine Related Service

CODE	TASK	TAUGHT	COMMENTS
E.01	Adjust valves on engines with mechanical or hydraulic lifters		
E.02	Perform cooling system pressure tests; check coolant; inspect and test radiator pressure cap, extension tank, and hoses; determine needed repairs		
E.03	Inspect and replace thermostat, by-pass, and housing		
E.04	Inspect, test, and replace mechanical/electrical fans, fan clutch, fan shroud, and fan control devices		

OCCUPATION: ENGINE PERFORMANCE SPECIALIST

DUTY: Perform Shop Organization and Safety Functions

CODE	TASK	TAUGHT	COMMENTS
Z.01	Maintain a clean, safe work environment		
Z.02	Maintain a positive work environment		
Z.03	Apply principles of basic measurement		
Z.04	Use hand tools		
Z.05	Use power tools		
Z.06	Use gas and electric welding equipment		
Z.07	Process work orders		
Z.08	Use shop reference manuals		
Z.09	Use shop lifts		
Z.10	Provide new car servicing; repair accessory or electronic options		